Proposal Reviews

#227: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

US Fish and Wildlife Service

Research and Restoration Technical Panel Review	
Sacramento Regional Review	
External Scientific Review	#1 #2 #3 #4
Prior Performance/Next Phase Funding	
Environmental Compliance	
Budget	

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Research and Restoration Technical Panel Review Form

Proposal Number: 227

Applicant Organization: US Fish and Wildlife Service

Proposal Title: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;
Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;
Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;
Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Superior	**The project is well designed but the panel reached a conclusion that the PHABSIM approach is not valuable for managing flow. However, in the scientific community opinions differ and CALFED may wish to review the validity of the methodology and its suitability for CALFED needs.**
-Above average	
-Adequate	
XNot recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

   The goal/hypotheses is somewhat circular and is to generate more hypotheses. In a general sense the goal is to determine how revised flow regimes will affect water temperature, channel maintenance, and how these factors will affect the size of salmon and steelhead habitat in Clear Creek.

   Funds will be used to purchase and manage B2 water in Clear Creek. Currently the effect of this water is uncertain. By improving predictions of impact of flow, refinement of flow regimes can be done more efficiently, saving time and money. The current model on the impact of flow on fish was developed 20 years ago and is a Physical Habitat Simulation System (PHABSIM) model. The proposal will update this work using a new more accurate 2D hydrodynamic model. The study, by collecting data, will also evaluate the 2D model

which will increase its use for evaluating the effects of flow on temperature and channel maintenance in other environments. The project, which is both a research project and a demonstration project, is justified if the PHABSIM approach can predict a meaningful relationship between flow and fish distributions and productivity. The panel had considerable uncertainty in the validity of the PHABSIM/WUA approach, even with the proposed improvements.

The panel noted that fish preference for depth, velocity, and substrate changes with a variety of factors including time of day, season, physical conditions (turbidity, temperature, discharge), and biological factors (food availability, predation risk, Mathur et al. 1985; Studley et al. 1996; Williams et al. 1999). More importantly, the link between WUA and population parameters such as abundance, growth, survival, or recruitment has never been well documented. These weaknesses apply to all numerical habitat models, including those based on 2-dimensional flow or that include more details about biology.

Mathur, D., W.H. Bason, E.J. Purdy, Jr., and C.A. Silver. 1985. A critique of the instream flow incremental methodology. Can. J. Fish. Aquat. Sci. 42: 825-831.

Studley, T.K. J.E. Baldridge, and S.F. Railsback. 1996. Predicting fish population response to instream flows. Hydro Review: 48-57.

Williams, J.G., T.P. Speed, and W.F. Forrest. 1999. Comment: transferability of habitat suitability criteria. No. Am. J. Fish. Man. 19: 623-625.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

   The panel had doubts that a Physical Habitat Simulation System (PHABSIM) approach can be used to identify how habitat preference change with season, reach, time of day, and flow. PHABSIM approaches are generally not successful in demonstrating relationships between rearing or spawning, Weighted Usable Area (WUA), and important fish population parameters such as growth, survival. These relationships will not be tested in the project. In particular a relationship between WUA and fish survival will not be tested. However the study may establish a relationship between WUA and flow. Data for development of the temperature model were not discussed.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

   Products are peer reviewed article, a relationship between managed flow and amount of habitat for indicator species, and management recommendations on flow. The products may be valuable directly for Clear Creek and for developing new flow management approaches regionally. However, the relevance of the results to fish survival and stock productivity is unclear and so ultimately the study may have limited use for flow management.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Costs are reasonable and estimates of time are adequate to tasks. Overhead averaged 15%, is low.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

   Regional review rates the proposal low noting the project was not adequately coordinated with local individuals and institution or other ongoing restoration action. Usefulness of the results to managers was questioned. Similarly, ongoing projects have demonstrated little management value.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

   Proponents need to obtain permission to enter private properties. Overhead rate for subcontractors is not disclosed.

Miscellaneous comments:

None

Sacramento Regional Review:

Proposal Number: 227

Applicant Organization: US Fish and Wildlife Service

Proposal Title: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

Overall Ranking: **X**Low **-**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The panel felt this project was not adequately coordinated with local individuals, institutions and other ongoing local restoration actions. Additionally, the specifics of the applied management benefits of the proposoal, particularly relative to ongoing planning efforts, were not clear.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   The methodology proposed is technically feasible, although the usefulness of the results, particularly for future management decisions needs clarity. Multiple projects are in the works or completed covering similar areas of inquiry, with little yet to show for management benefit. Proponents need to demonstrate usefulness, and also how data sets for similar tribs/reaches are transferable to maximize limited dollars. There did not seem to be much coordination with existing projects, particularly with those of the local USFWS or DFG. If the species evaluation is only for fall chinook, does that change the need/priority? Restoration actions on Clear Creek are based in priority upon spring chinook and steelhead.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   This proposal specifically addresses Restoration Priorities for the Sacramento Region #2, "Restore fish habitat and fish passage, particularly for spring-run chinook salmon and steelhead trout and conduct passage studies", #3, "Conduct adaptive management experiments in regard to natural and modified flow regimes to promote ecosystem functions or otherwise support restoration actions", and #7, Develop conceptual models to support restoration of river, stream and riparian habitat".

   Basic questions arise however, over whether proposal as structured will directly address spring chinook and/or steelhead; whether project is closely integrated with other projects on Clear Creek; whether similar information generated elsewhere could be applied to minimize cost.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   Proponents mention other efforts by Western Shasta RCD, but don't clearly indicate how effort fits with local USFWS or DFG efforts. In addition, there have been multiple evaluations within the last ten years with various components that would, or might be useful in this endeavor. Other than the UCD temp. study and possibly the DWR instream flow study little or no notice is made.

4. Does the project adequately involve local people and institutions?

   -Yes **X**No

   How?

   Proponents seem to have glossed over the issue of local access by stating most of the land is govt. owned or access will be gained later. Such an approach was a major detriment on other small watersheds. Additionally, more specifics of coordination with the Western Shasta RCD, and/or other agency efforts and participation should have been included.

Other Comments:

Recent projects involving this type of investigation have been completed or are in progress, but don't seem to have generated (yet) major management benefits. Additionally, habitat preference and flow relationships don't seem to be transferable, or at least are not being used as building blocks from one tributary to another. Also, there are a number of researchers proposing similar evaluations, often in isolation and not being adequately integrated.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **227**

Applicant Organization: **US Fish and Wildlife Service**

Proposal Title: **Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
XExcellent	**This proposal is a standard against which others should be judged.**
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The goal is to determine how revised flow regimes will affect water temperature, channel maintenance and how this will affect size of salmon and steelhead habitat in Clear Creek.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   Funds will be used to purchase and manage B2 water in Clear Creek. The hypothesis on the effect of this water is uncertain. By improving predictions of impact of flow, refinement of flow regimes can be done more efficiently, saving time and money. The current model was developed 20 years ago and does not incorporate new criteria or new channel changes. The

proposal will update this work using a new more accurate 2D river model. The study, by collecting data, will also evaluate the 2D model which will increase its use for evaluating the effects of flow on temperature and channel maintenance in other environments. The project, which is both a research project and a demonstration project, is justified by the preparation of the plan.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   Seven detailed tasks are identified beginning with location of redds and collecting physical and substrate information, moving through mapping habitat, modeling habitat and temperature with advanced techniques and finally evaluating results. The results will add to basic knowledge, will generate novel information, and overall should be very useful to managers. Other proposals, addressing habitat and temperature modeling, are weak by comparison. This proposal is excellent in conveying knowledge, powerful techniques in a organized and well conceived plan.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach is document and feasible. Probability of success is high

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Performance measures both detailed and quantifiable included reports, presentations, peer reviewed publication, and statistical evaluation of occupied vs. unoccupied locations.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   Produces are peer reviewed article, a relationship between managed flow and amount of habitat for indicator species, and management recommendations on flow. The products will be valuable directly for Clear Creek and for developing new flow management approaches that will be useful regionally and internationally.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   Applications have a very good to excellent track record with many projects within the region. Four staff, 2 with PhD, 2 with MS degrees covering engineering, ecology, biology, geology and resource science. This is perhaps the most qualified group reviewed. They have a number of publications.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Costs are reasonable and estimates of time are adequate to tasks. Overhead averaged 15%, near the lowest of all proposals.

Miscellaneous comments:

This is essential work by highly qualified people. Highly recommend funding.

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **227**

Applicant Organization: **US Fish and Wildlife Service**

Proposal Title: **Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**Good +** **A very feasible project from the sounds of it and likely to achieve success in leading to a better understnading of how hydraulic conditions influence the in-stream use by certain species of interest.** **Some of the descriptive material in the project proposal was a little confusing.** **Measures of success of the project are not well defined.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   Yes. The goals, objectives and hypotheses are straightforward. The concept is applied liberally to managed river systems.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   Yes. the methods for most of this work are well established. Apparently, in-stream modifications (gravel introduction and channel resonstruction) are on-going.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   As a monitoring project, it is appropriate. It will generate detailed inforamtion about this river system not necessarily transferable.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach is well documented and has been performed by the group previously. Success is likely. The project has reasonable limits. However the ability to sample multiple sites at channel-altering high flows will require careful planning and possibly additional personnel.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   I think there is room for funders to specify more detailed performance measures of the the project's success.

   "Statistical tests" are the intended measure of the model's success. This needs to be further specified. Results that are synthesized and made meaningful to decision makers are more important than field notes.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   If successful, the project could lead managers to a better understanding of how regulated flows influence the in-stream environment downstream and allow them better control over its fate.

   It is not clear how current restoration projects in the river will impact the data collection that presumably will be used to model the more-or-less on-going river conditions that will persist years after the restoration is completed.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

This is an extension of existing work. The proposal writers have experience iwth all phases of the project.

They claim they will make the data and infomrmation available "on request in electronic format" similar to other projects. The question is how and where, and how will this be maintained at the conclusion of the project.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   A fairly significant amount of field work is required and that seems easily justified. However, the work of the consultants over the three years for "Evaluation of Channel Maintenance" is not clear. The concept is laid out in Task 7, but their activities over the three years is vague. For example, would a partial result be available in one year? Will their tasks change from year to year?

Miscellaneous comments:

There are some errors in the proposal/budget it appears (e.g. $7500 for supplies and expendibles for water temperature modeling in year 3 but no consultant services.) and I cannot judge their significance or determine if there are others.

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: **227**

Applicant Organization: **US Fish and Wildlife Service**

Proposal Title: **Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**There is clearly a need to improve on the previous models used to estimate flow-habitat relationships on Clear Creek. The new predictions may solve some of the identified weakness of the past but the question of whether these flows benefit organisms is untested. There are parts of the proposal which have not been fully described.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The goals and hypotheses are somewhat circular--the goal/hypothesis is to generate more hypotheses. This is weakly put and somewhat trivializes the project aims.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

There is a need for continual improvments to estimate flow conditions under new discharge regimes and former techniques have been replaced by better techniques. There is good evidence presented that earlier methods used on the stream are flawed. The use of the newer techniques have been applied elsewhere and appear to "work."

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The newer methodology is said to be an improvement on past techniques but it is difficult to find in the proposal what evidence would be used to support that assumption. The temperature model component is only referenced--data needs or data to be collected are not discussed. Similar blanks occur with reference to macroinvertebrates in the study: they are mentioned as important biological targets but no discussion of how they will be used in the project was discussed.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   There will be much data collection for incorporation into a new predictive flow model. Success for actually improving habitat is unknown. The models will be able to generate new estimates.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Performance measure are weakly developed in comparison to description of application of the technique and its data needs. It is unclear, for example, if the flow regime to be "tested" will be on actual flows or simulated flows. The actual response of organisms to a new regime is not discussed.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   New flow standards for explanding suitable habitat will be produced by newer techniques. Given the limitations on older PHABSIM and incremental flow methods, the newer models will likely improve flow-habitat predictions. These may be as good as are available at present.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The work group has substantial expeience in implementing such studies elsewhere and they have solid familiarity with the project area and previous work.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

Substantial field data on hydrologic conditions and flow relationships will be a significant benefit of this project. To the extent that the newer models actually improve habitat predictions, the benefits of sharpening the timing and quantity of new flow regimes could be substantial. The costs are reasonable for the intensive field data obtained.

Miscellaneous comments:

Creation of more hypotheses concerning flow-habitat relationships is not a particularly strong basis for justifying three years of work.

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **227**

Applicant Organization: **US Fish and Wildlife Service**

Proposal Title: **Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**Authors have laid out a well designed and comprehensive instream flow study. If questions I have addressed above could be incorporated into a revised plan, I believe it would be an excellent and cutting edge type of instream flow analysis.**
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   This is an interesting study proposing to link some of the new 2-D flow-habitat simulation capabilities to develop better, site-specific relationships between flow, habitat, and biological parameters in order to set, and evaluate, altered flow regimes aimed at recovering chinook salmon populations in the Sacramento River area. Overall, I found the proposal well reasoned and well written and the tasks and objectives and methods clearly framed The concept of the study is very timely as the new 2D models need to be tested and evaluated in field conditions, and this proposal will be an intensive effort to do just that.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The study is well justified and Clear Creek appears to be an excellent site to test these new instream flow simulation methods. There is good historical data on flows and channel change, a high demand for the information, and the authors have laid out a comprehensive approach to integrate changes in channel morphology, fish habitat, and temperature in order to evaluate proposed flow changes.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   I found the overall approach well designed and to offer a very unique and comprehensive linkage of some very complicated flow-habitat-biological interactions. The study will yield some very interesting views of channel and habitat changes in response to flow changes. The physical habitat and hydrological aspects of the study I found comprehensive and well designed. The aspect of that part of the study that I believe require more justification is the channel maintenance part of the study. Mesohabitat wasn't clearly defined, so it was difficult to ascertain how the link between flow to mesohabitat avaiability was to be determined (p.9). Also, there is considerable time and effort relegated to sediment transport model outputs, but it was not clear how this information would be related to the overall instream flow assessment and adaptive management of flows. I found the weakest link of any otherwise very solid study, to be the biological assessment part of the the proposal. In particular, the habitat suitability criteria development for juveniles and macroinverts was not clearly described. The juvenile data collection was a bit sketchy, and based on really a pretty small sample size (150 juveniles) given the size of the study area (16 miles). As for HSC curve data for macroinverts, this was not included in the proposal. Again, it was noted that sampling for both these variables would be stratified by mesohabitat type, but what these 'types' were was not defined. I feel another area for needed improvement in the approach is the biological validation. While the approach as described for testing by comparing predicted with observed is a good step, in my; view this is really just "verification" of the model, much as one would predict the residuals oor fit between observation and what was predicted in a linear regression. A limitation of this approach is that you are merely applying the model where the data were collected; a more valid, and stronger approach to validation would be to apply the model to a novel area to predict fish use, and thus test the model with an independent set of observations.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The project overall appears feasible, and the authors have budgeted considerable, but seemingly adequate, amount of time to complete this rather ambitious project. They do appear to have a very good track record at completing similar types of studies, though. I found an appealing part of this proposal that the authors were not merely applying on the shelf instream flow methods uncritically; they are applying the most current methods but attempting at the same time to evaluating how well they work.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans

explicit and detailed enough to determine if performance measures will be adequately assessed?

Overall, the performance measures and timetable seem appropriate. I would like to see the authors incorporate more than one journal article as an end-product. Relatively little is written on instream flow application, particularly relative to its wide use throughout the w world, and the authors seem to be one of the leaders in applying, and evaluating, instream flow methods, and I would encourage them to budget more time to preparing journal articles, much like they did in the Gallagher and Gard article, one of the more interesting tests of some of the instream flow assumptions in awhile.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   I did find it unclear what the present flow conditions in Clear Creek are, what the plans are for altered flows, and how this project would dovetail in providing an adaptive management perspective in this flow implementation. The study was mentioned as part of an adaptive management process, but how it would be a part of it was unclear. This is important since the authors list this study as a 'monitoring' study, so the link between testing, application, and evaluation/monitoring need to be more clearly laid out.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   Authors have a very good track record in similar sorts of large, complex instream flow studies. As noted, the authors appear to be some of the leaders in not just merely implementing instream flow methodologies, but also testing some of their underlying assumptions, and that is what they have laid out for this study as well.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   I have not personally done similar types of implementation of instream flow on the scale they are, so difficult to judge directly. They have outlined a bvery ambitious project and they have seemed to allow adequate field as well as the considerable amount of computer/office time required.

Miscellaneous comments:

A final comment on biological validation. This study, like many other instream flow studies, relies solely on fish use of microhabitats --a very small scale--for biological validation, yet inferences made about fish response are over a large study area, in this case 16 miles of river reach. Adaptive management decisions, and instream flow evaluations in general, would be much better served, in my opinion, if they had better links to larger-scale population data. Thus my recommendation, in addition to the suggested refinements listed above, is for this study to be linked more directly changes in flow and channel maintenance to actual population-level response data--ie, no. of redds, population data on juveniles, etc.

Prior Performance/Next Phase Funding:

New Proposal Number: 227

New Proposal Title: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   Identification of the Instream Flow Requirements of or the Anadromous Fish in the Streams within the Central Valley of California

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   XYes -No -N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   -Yes -No **X**N/A

If no, please explain:

Other Comments:

Marks progress has been satisfactory, but we are working with him on a more timely development of final products.

Environmental Compliance:

Proposal Number: 227

Applicant Organization: US Fish and Wildlife Service

Proposal Title: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

   -Yes **X**No

   If no, please explain:

   Need to indicate permission to enter appropriate landowner's property (either have or will obtain).

   Also, a Categorical Exemption and Exclusion are not needed for this project. Simply check "none" on the Environmental Compliance checklist.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

   XYes **-**No

   If no, please explain:

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

   -Yes **X**No

   If yes, please explain:

Other Comments:

Budget:

Proposal Number: 227

Applicant Organization: US Fish and Wildlife Service

Proposal Title: Identification of the Instream Flow Requirements for Aquatic Ecosystems in Clear Creek

1. Does the proposal include a detailed budget for each year of requested support?

   XYes **-**No

   If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

   XYes **-**No

   If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

   XYes **-**No

   If no, please explain:

   OH rate for subcontractor is not disclosed. Component expense costs of applicant's OH should be verified.

4. Are appropriate project management costs clearly identified?

   XYes **-**No

   If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

   XYes **-**No

   If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

6. Does the budget justification adequately explain major expenses?

   XYes **-**No

If no, please explain:

7. Are there other budget issues that warrant consideration?

XYes **-**No

If yes, please explain:

Verify benefits rate for applicant.

Other Comments:

Compliance with State Standard Terms - verify if applicant can comply w/10% retention clause.